

Los estudios en estructura nuclear como, donde y porqué

The background of the slide features a dark, textured surface, possibly representing a detector or a microscopic view of a nucleus. A prominent diagonal band of glowing pixels runs from the top left towards the bottom right, transitioning through various colors including red, orange, yellow, green, and blue. This band represents the data or signal being analyzed.

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and

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*on behalf of the INFN's
GAMMA Collaboration*

GAMMA collaboration

- Scientific Production

- Management and

Membership of Scientific Committees

External funds (2011-2016)
(INFN, EU, MIUR, ...): 5.2 M€

66 ricercatori e tecnologi per un totale di 51.1 Full Time Equivalent presenti in 6 Sezioni INFN

Resp.nazionali: S.Leoni e D.R.Napoli

370 publications (2011-2016)

(1% Nature, 10% PRL, 50% PRC,...)

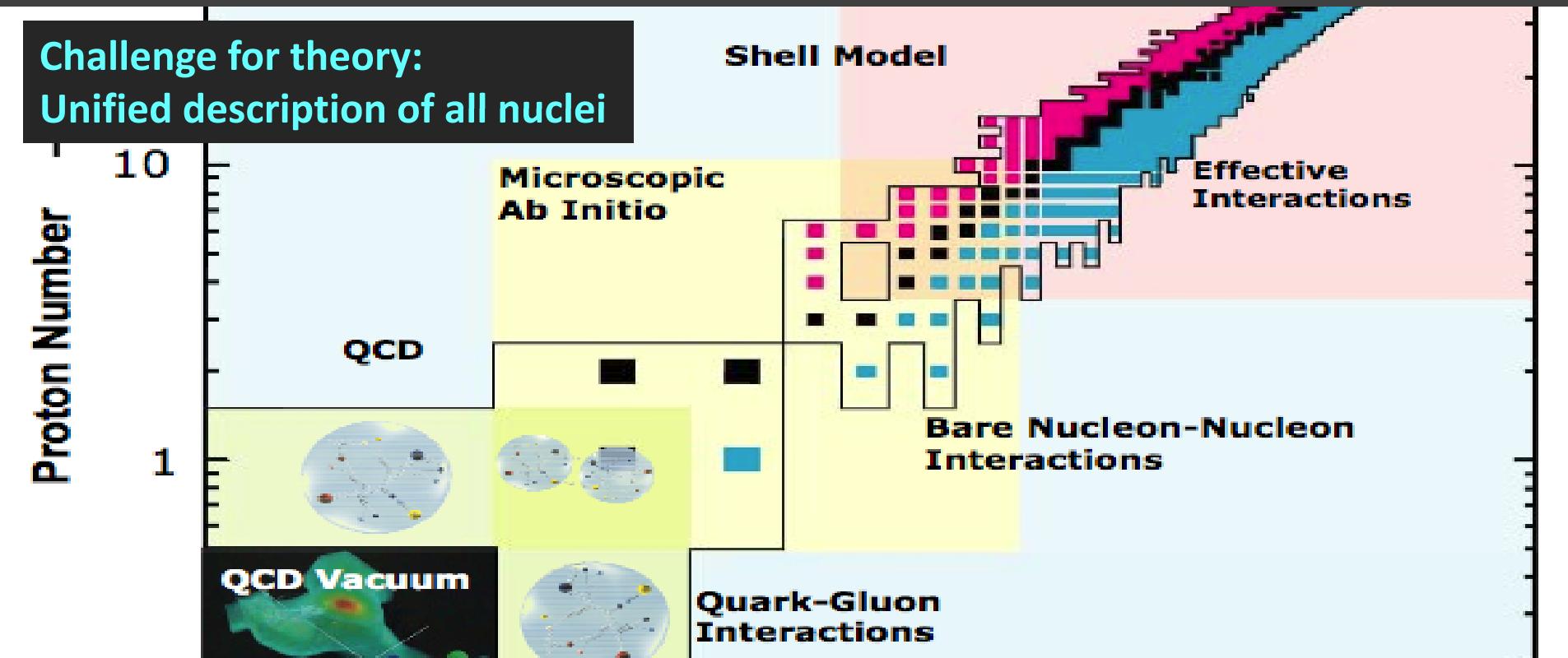
410 presentazioni in conf. - 98 Tesi

Management (today)

- President and members of Scientific Advisory Committees of European Laboratories
- Scientific Coordinator AGATA experimental campaign in the Laboratory GANIL (France)
- Coordinator of European Networks (EU funds)
- Members of AGATA Management Board and AGATA Collaboration Council
- Editor and referees of int. Journals
- Resp. of PRIN, PRAT, FIRB, etc.
- Evaluators of Scientific Agencies and Institutions

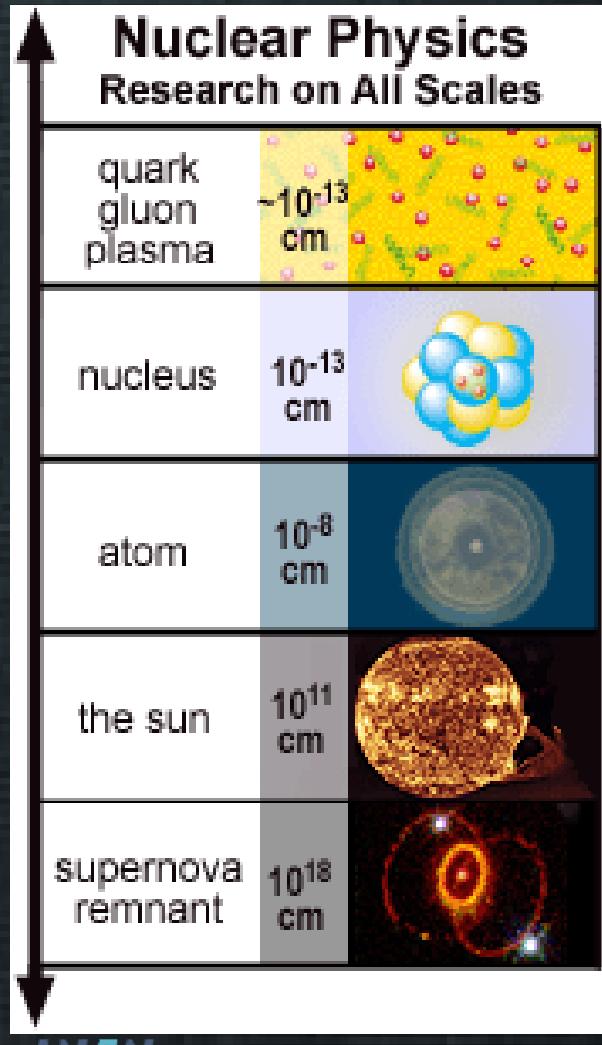
Nuclear physics at the frontier

- How does subatomic matter organize itself and what phenomena emerge?
- How do regular patterns and collective behavior emerge in complex nuclei?
- How does shell structure evolve far from stability?

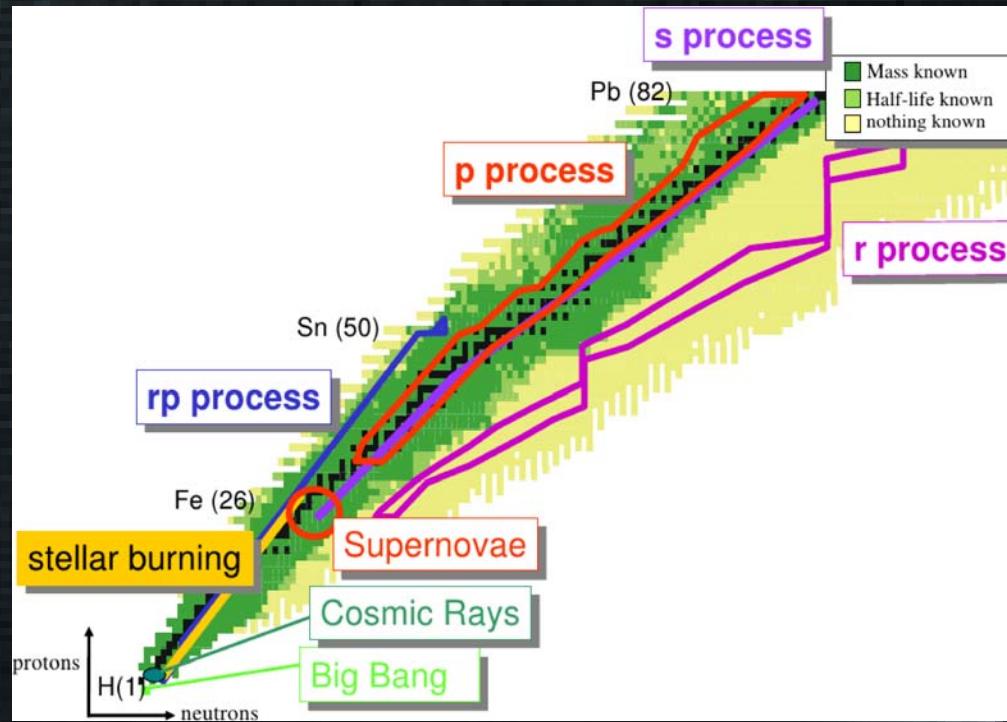


- How do the underlying symmetries manifest in collective motion or single-particle behaviour and how these modes compete?
- How do NNN forces impact structure and reaction properties of nuclei ?

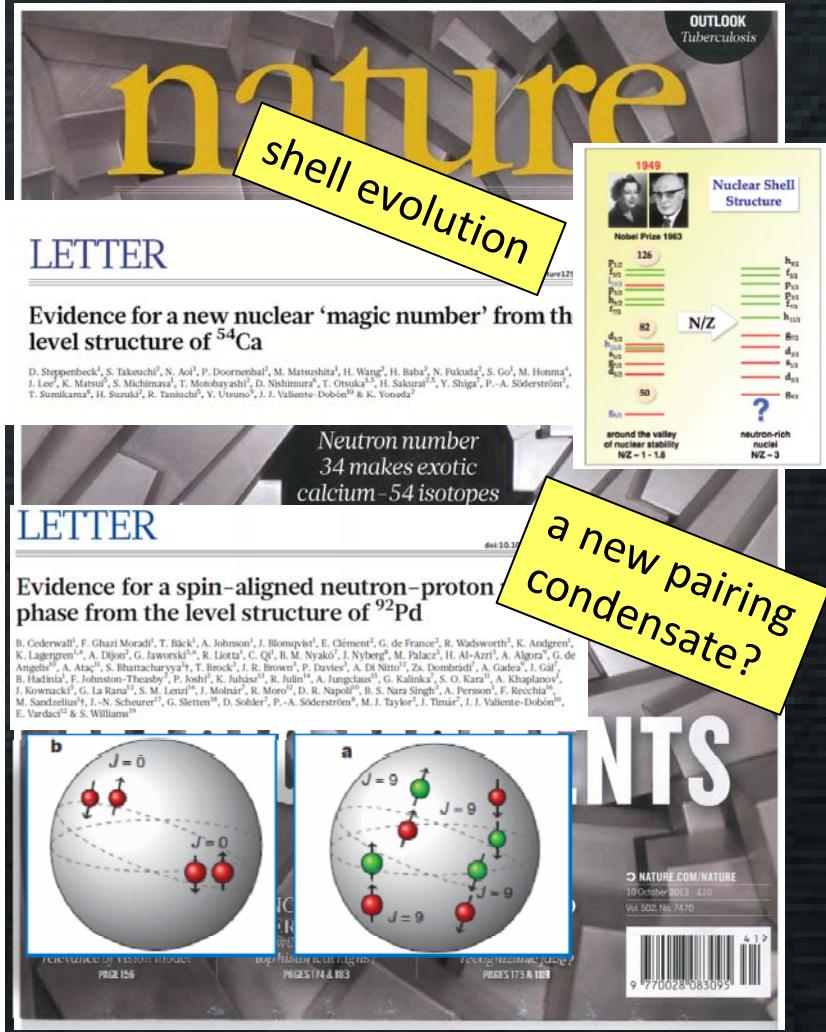
Nuclear Research



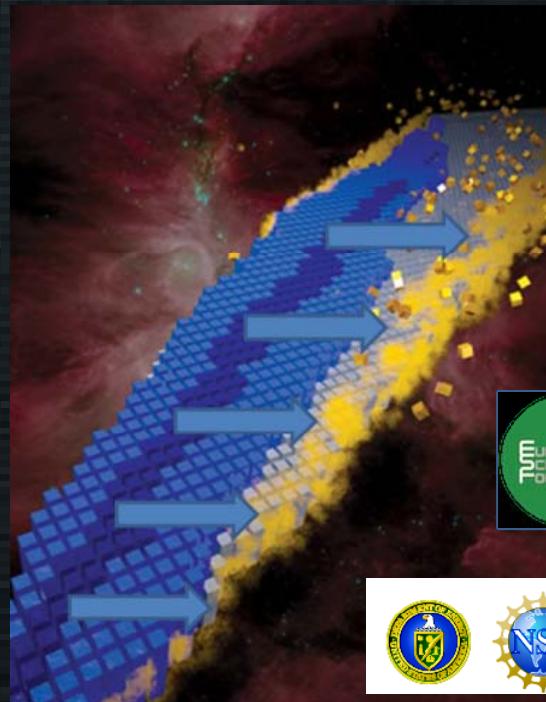
Nuclear physics research addresses the existence and origin of atomic nuclei, their limits, and their underlying nature. It also aims to describe interactions between nuclei, the structure and evolution of stars.



New properties far from stability



Exploration of elements and isotopes at the extremes of N/Z will provide the insights needed for a comprehensive understanding of nuclei



NuPECC Long Range Plan 2010
Recommendations and Roadmap
-2017 in preparation



The 2015
LONG RANGE PLAN
for NUCLEAR SCIENCE

Radioactive beam facilities: International context

APAN) Decided upgrade of injector LINAC
US) NSAC recognizes FRIB
Japan, for Rare Isotope Beams, as the highest priority, RHIC is ranked second

- 2014: (Canada) First beams from

2015: (CERN) HIE- ISOLDE Upgrade: 4.3 MeV/u
2016 (France): Upgrade SPIRAL1 Beams

AGATA

Eastern Tracking Array

SPES

GRETA

FRIB

Flags of Bulgaria, Denmark, Finland, France, Germany, Hungary, Italy, Poland, Romania, Sweden, Turkey, and the United Kingdom.

Spettroscopia GAMMA allo stato dell'arte

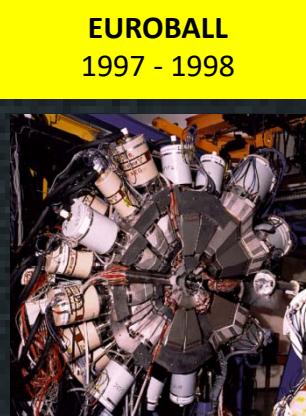
Spettroscopia γ di alta risoluzione e alta efficienza

Rivelatori HPGe per raggi gamma ai LNL

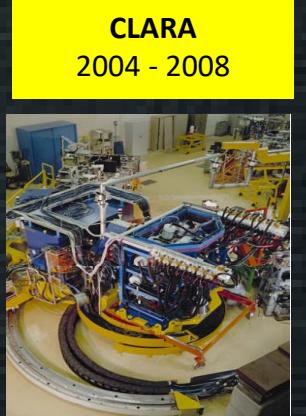
MIPAD 1988 - 1992



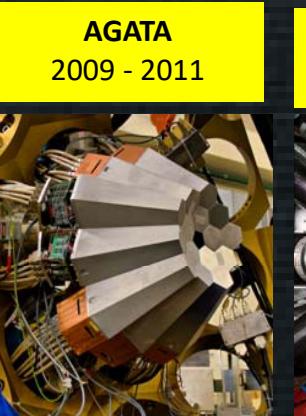
GASP
1992 - 2012



EUROBALL
1997 - 1998



CLARA
2004 - 2008



AGATA
2009 - 2011



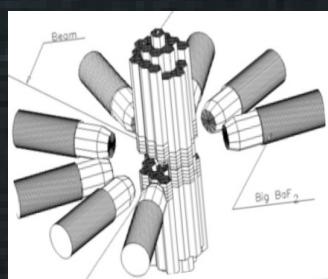
GALILEO
2014 - ...



Spettroscopia γ di alta energia

Rivelatori scintillatori per raggi gamma (BaF_2 , LaBr_3 , ...)

HECTOR
1980' @ NBI



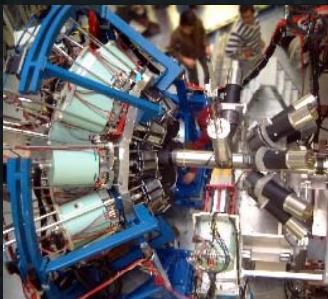
HECTOR
1990' @ LNL



HECTOR
2000' @ IRES



HECTOR
2000' @ GSI



HECTOR+
2010' @ GSI



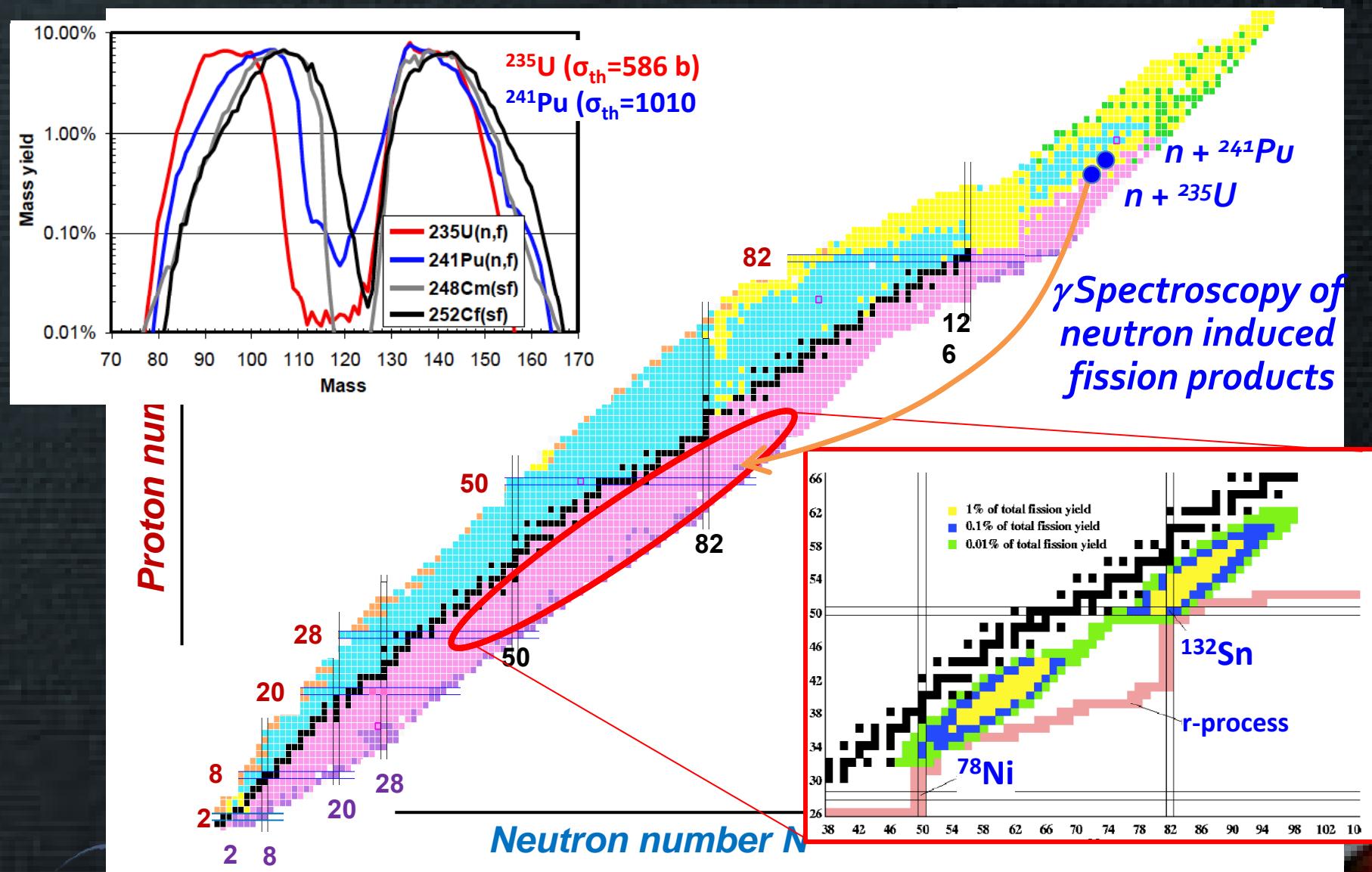
HECTOR+
2014' @ RIKEN



CAMPAGNE SperimentALI COMPLEMENTARI FASCI (stabili, instabili, neutroni), APPARATI, ...



Nuclear Structure Far Away from Stability



Preparatory work for SPES ...

Preparing for SPES

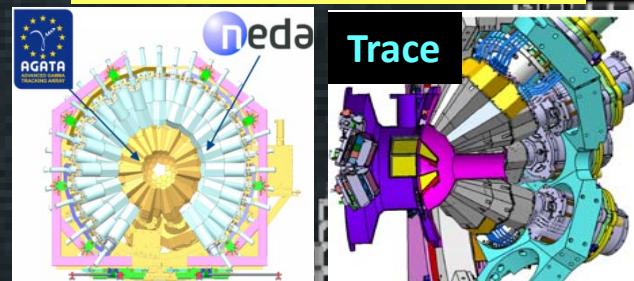


Effective interactions from
NN chiral potentials.
Dynamical symmetries.

Theory

Reaction dynamics including
coupling to the continuum

charged-particle and
neutron detector arrays



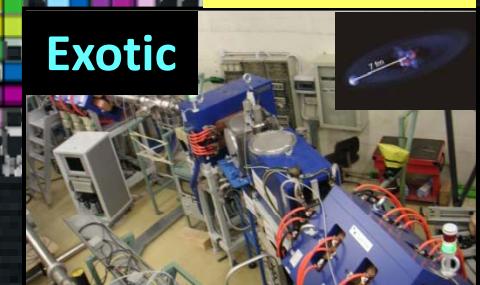
Prisma



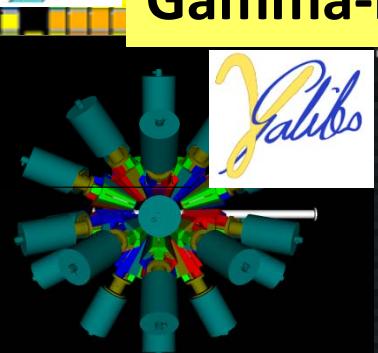
Magnetic
spectrometer

Radioactive
halo nuclei

Exotic



Gamma-ray arrays



LNL 2016

LNL 2018

GANIL
2015-2020

SPES 2021-

The Gamma Tracking Array Concept

